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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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R. Hugo Patterson

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12/23/2008

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EXAMINER

LOVEL, KIMBERLY M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/779,355	Applicant(s) PATTERSON ET AL.	
	Examiner KIMBERLY LOVEL	Art Unit 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-7,10-12,14,15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-7,10-12,14,15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1, 4-7, 10-12, 14, 15 and 17-20 are rejected.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10 November 2008 has been entered.

Claim Objections

3. Claims 4, 5, 11, 15, 17, 19 and 20 are objected to because of the following informalities:
 4. Claim 4 recites the limitation "said first constituent data stream." Through the comparison of similar claims, it appears that this limitation should state "said second constituent data stream."
 5. Claims 5, 11, 15, 17, 19 and 20 utilize either and/or or decomposer/recomposer. It is suggested that the slash be removed since the metes and bounds of the term is unknown.
 6. Appropriate correction is required.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. **Claim 19** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

9. **Claims 19** is directed towards a program product comprising a machine readable medium. According to [0033] of the specification, the term "machine readable medium" includes signals. Thus, the term covers non-statutory embodiments which improperly include network transmission lines (interpreted as wired and wireless transmission), wireless transmission media, signals propagating through space, radio waves, infrared signals, etc.

See, e.g., *In re Nuitjen*, Docket no. 2006-1371 (Fed. Cir. Sept. 20, 2007)(slip. op. at 18) "A transitory, propagating signal like *Nuitjen*'s is not a process, machine, manufacture, or composition of matter.' ... Thus, such a signal cannot be patentable subject matter."

Therefore, the claimed subject matter fails to fall within one of the four statutory classes.

According to MPEP 2106:

The claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Both types of "descriptive material" are nonstatutory when claimed as

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descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994)

10. To allow for compact prosecution, the examiner will apply prior art to these claims as best understood, with the assumption that applicant will amend to overcome the stated 101 rejections.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 4-7, 10-12, 14, 15 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US PGPub 2002/0194209 to Bolosky et al (hereafter Bolosky) in view of US PGPub 2004/0243643 to Hattrup et al (hereafter Hattrup).

Referring to claim 1, Bolosky discloses a computer implemented method for storing data comprising:

receiving [storing files] a composite data stream [file format includes data stream and metadata stream] (see [0028] and Fig 4);

storing the received composite data stream so that it may be restored, said storing including,

decomposing the composite data stream into a plurality of constituent data streams, the plurality of constituent data streams including at least a first constituent data stream of user data [data stream 402] and a second constituent data stream of administrative data [metadata stream 404] (see [0070]), wherein said decomposing includes,

segmenting at least one of the plurality of constituent data streams decomposed from the composite data stream [the file contents in the data stream 402 can be broken into smaller blocks] (see [0074]);

determining which segments resulting from the segmenting match segments already stored [single instance storage technology] (see [0004] and [0070]);

in lieu of storing discarding those of the segments resulting from the segmenting which are determined to have been stored previously match already stored segments, storing pointers to those already stored segments [merging the files into a single instance of data; one or more logically separate links are then attached to the storage instance to represent the original files] (see [0004] and [0070]); and

storing those of the segments resulting from the segmenting determined not to match already stored segments [single instance storage] (see [0004] and [0070]).

While Bolosky discloses receiving the stream from a user and restoring the stream to the user instead of a server, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a server instead of a server-less system. One would have been motivated to do so in order to increase the security level

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of the storage system since the files are stored in a central location instead of being stored in a plurality of individual computers (see [0002] and [0005]).

Bolosky fails to explicitly disclose the further limitation of storing a composite data stream map that indicates how to recompose the plurality of constituent data streams into the composite data stream. Hattrup discloses the segmenting and recomposing of a data stream, including the further limitation of storing a composite data stream map [formatting map] that indicates how to recompose the plurality of constituent data streams into the composite data stream (see [0065]; [0090]; [0126]; and [0127]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to maintain and apply formatting rules disclosed by Hattrup to the data streams of Bolosky. One would have been motivated to do so in order to increase the accuracy of data integrity checking (Hattrup: see [0019]).

Referring to claim 4, the combination of Bolosky and Hattrup (hereafter Bolosky/Hattrup) discloses the computer implemented method of claim 1, wherein said storing the received composite data stream further comprises: determining the second constituent data stream is of administrative data that may be restored by regeneration rather than being stored; and discarding said first constituent data stream [metadata stream 404 is ignored by the SIS system] (Bolosky: see [0070]).

Referring to claim 5, Bolosky/Hattrup discloses the computer implemented method of claim 4 wherein the administrative data is tape markers and/or header information [metadata stream 404 contains a header 406] (Bolosky: see [0079]).

Referring to claim 6, Bolosky/Hattrup discloses the computer implemented method of claim 1 wherein the storing the received composite data stream comprises segmenting each of the plurality of constituent data streams [the file is divided into multiple blocks] (Bolosky: see [0007]).

Referring to claim 7, Bolosky discloses a computer implemented method for efficiently storing data comprising:

receiving over time, and a segment reuse storage system, a plurality of composite data streams from a server, each of said plurality of composite data streams [file format includes data stream 402 and metadata stream 404] representing snapshots of data residing at a set of one or more sources taken over said time, wherein the server receives data streams from the client applications, wherein the client applications and/or server insert into the data streams administrative data [metadata stream not stored] that is expected upon restore and that if kept in the data streams would result in a relatively low compression efficiency of the segment reuse storage system [single instance storage] (see [0004]; [0070]; and Fig 4); and

storing each of said plurality of composite data streams so that it may be restored to the server, said storing including,

decomposing the composite data stream into a plurality of constituent data streams, the plurality of constituent data streams including at least a first constituent data stream of user data [data stream 402] and a second constituent data stream of administrative data [metadata stream 404] (see [0070]), wherein said decomposing includes,

storing using segment reuse [single instance storage] a set of one or more of said plurality of constituent data streams, said storing using segment reuse including performing the following for each of said set of constituent data streams,

segmenting the constituent data stream [the file contents in the data stream 402 can be broken into smaller blocks] (see [0074]),

determining which segments resulting from the segmenting match segments already stored, and storing only those segments of the constituent data stream that cannot be restored using segments already stored [single instance storage technology] (see [0004] and [0070]).

While Bolosky discloses receiving the stream from a user and restoring the stream to the user instead of a server, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a server instead of a server-less system. One would have been motivated to do so in order to increase the security level of the storage system since the files are stored in a central location instead of being stored in a plurality of individual computers (see [0002] and [0005]).

Bolosky fails to explicitly disclose the further limitations of storing a composite data stream map that indicates how to recompose the plurality of constituent data streams into the composite data stream and at a storage server having a composite data stream decomposer/recomposer. Hattrup discloses the segmenting and recomposing of a data stream, including the further limitation of storing a composite data stream map [formatting map] that indicates how to recompose the plurality of

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constituent data streams into the composite data stream (see [0065]; [0090]; [0126]; and [0127]) and at a storage server having a composite data stream decomposer/recomposer [disassembler/assembler] (see [0127]-[0129]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to maintain and apply formatting rules disclosed by Hattrup to the data streams of Bolosky. One would have been motivated to do so in order to increase the accuracy of data integrity checking (Hattrup: see [0019]).

Referring to claim 10, Bolosky/Hattrup discloses the computer implemented method of claim 1, wherein said storing each of said plurality of composite data streams further comprises: determining the second constituent data stream is of administrative data that may be restored by regeneration rather than being stored; and discarding said second constituent data stream [metadata stream 404 is ignored by SIS system] (Bolosky: see [0070]).

Referring to claim 11, Bolosky/Hattrup discloses the computer implemented method of claim 10, wherein the administrative data is tape markers and/or header information [metadata stream 404 contains a header 406] (Bolosky: see [0079]).

Referring to claim 12, Bolosky/Hattrup discloses a computer implemented method for storing data comprising:

receiving, at a storage server having a composite data stream decomposer/recomposer and a segment reuse storage system, a composite data stream, said composite data stream representing at least a snapshot of data residing at the computer coupled to said backup server, wherein the client application and/or

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backup server insert into the composite data stream administrative data that is expected upon restore and that if kept in the composite data stream would result in a relatively low compression efficiency of the segment reuse storage system [single instance storage] (see [0004]; [0070]; and Fig 4);

storing the received composite data stream so that it may be restored to the backup server, said storing including,

decomposing the composite data stream into a plurality of constituent data streams, the plurality of constituent data streams including at least a first constituent data stream of user data [data stream 402] and a second constituent data stream of administrative data [metadata stream 404] (see [0070]), wherein said decomposing includes, and

backing up each of said plurality of constituent data streams separately, said backing up including, applying segment reuse to back up a set of one or more of said plurality of constituent data streams including [single instance storage] (see [0004] and [0007]),

segmenting at least the first constituent data stream in to current segments [the file contents in the data stream 402 can be broken into smaller blocks] (see [0074]);

determining which of the current segments match already stored segments; and storing only those of the current segments that do not match already stored segments [merging the files into a single instance of

data; one or more logically separate links are then attached to the single instance to represent the original files] (see [0004] and [0070]).

While Bolosky discloses receiving the stream from a user and restoring the stream to the user instead of a server, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a server instead of a server-less system. One would have been motivated to do so in order to increase the security level of the storage system since the files are stored in a central location instead of being stored in a plurality of individual computers (see [0002] and [0005]).

Bolosky fails to explicitly disclose the further limitations of storing a composite data stream map that indicates how to recompose the plurality of constituent data streams into the composite data stream and a composite data stream from a backup server, wherein the backup server is part of a backup system that includes a client application on a computer coupled to the backup server (see Fig 2 and Fig 8).

Hattrup discloses the segmenting and recomposing of a data stream, including the further limitation of storing a composite data stream map [formatting map] that indicates how to recompose the plurality of constituent data streams into the composite data stream (see [0065]; [0090]; [0126]; and [0127]) and at a storage server having a composite data stream decomposer/recomposer [disassembler/assembler] (see [0127]-[0129]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to maintain and apply formatting rules disclosed by Hattrup to the data

streams of Bolosky. One would have been motivated to do so in order to increase the accuracy of data integrity checking (Hattrup: see [0019]).

Referring to claim 14, Bolosky/Hattrup discloses the computer implemented method of claim 13, wherein said backing up includes: discarding the second constituent data stream because it is of administrative data that may be restored using regeneration as opposed to storage [metadata stream 404 is ignored by SIS system] (Bolosky: see [0070]).

Referring to claim 15, Bolosky discloses an apparatus to back up data comprising:

an interface agent to receive over time composite data streams representing snapshots of data residing at a set of one or more sources (see Fig 1);

to decompose composite data streams into their constituent data streams, the constituent data streams include at least a first constituent data stream of user data [data stream 402] and a second constituent data stream of administrative data [metadata stream 404] (see [0070]);

a segment reuse storage system, coupled to said composite data stream decomposer/recomposer, to perform segment reuse to store and restore-the-constituent data streams and to restore the constituent data streams to the server [single instance storage] (see [0004] and [0070]).

Referring to claim 17, Bolosky/Hattrup discloses the apparatus of claim 15 further comprising: an administrative data regenerator, coupled to said composite data stream decomposer/recomposer, to regenerate data from constituent data streams that

was not stored because that data could be restored by regeneration
[assembler/disassembler] (Hattrup: see [0126]-[0128]).

Referring to claim 18, Bolosky/Hattrup discloses the apparatus of claim 17 wherein the administrative data is regenerated in accordance with composite data stream attribute data retrieved from a configuration file (Hattrup: see [0128] and [0144]).

Referring to claim 19, Bolosky/Hattrup discloses the apparatus of claim 15 wherein the composite data stream decomposer/recomposer is a machine-readable medium having stored thereon a set of instructions, which when executed by a set of one or more processors, cause the operations of the composite data stream decomposer/recomposer to be performed (Hattrup: see [0046]).

Referring to claim 20, Bolosky/Hattrup discloses the apparatus of claim 15 wherein the composite data stream decomposer/recomposer is an application specific integrated circuit (Hattrup: see [0045]).

Response to Arguments

13. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY LOVEL whose telephone number is (571)272-2750. The examiner can normally be reached on 8:00 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Cottingham can be reached on (571) 272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John R. Cottingham/
Supervisory Patent Examiner, Art Unit 2167

/Kimberly Lovel/
Examiner
Art Unit 2167

21 December 2008
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